Washington State Institute for Public Policy

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our Technical Documentation.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

College advising provided by counselors (for high school students)
Higher Education
Benefit-cost estimates updated May 2017. Literature review updated December 2016.

Program Description: Students in the 10th-12th grade meet in person with advisors at the high school for college-focused advising sessions. A typical session with an advisor addresses the application and enrollment process, career path readiness, and post-secondary education plans. The number of advising sessions varies by program, some sessions are held only during the time when students are applying to college, other programs require visits in multiple grades. The length and frequency of interaction with an advisor ranges from one-hour meetings once or twice a year to one-hour meetings every two to three weeks during the application season.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$5,623	Benefit to cost ratio	$74.56
Participants	$13,083	Benefits minus costs	$24,182
Others	$6,600	Chance the program will produce	
Indirect	($795)	benefits greater than the costs	100 %
Total benefits	$24,510		
Net program cost	($329)		
Benefits minus cost	$24,182		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Labor market earnings associated with higher education	$15,155	$6,882	$7,233	$0	$29,269
Costs of higher education	($2,072)	($1,260)	($633)	($631)	($4,595)
Adjustment for deadweight cost of program	$0	$0	$0	($165)	($165)
Totals	$13,083	$5,623	$6,600	($795)	$24,510

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.
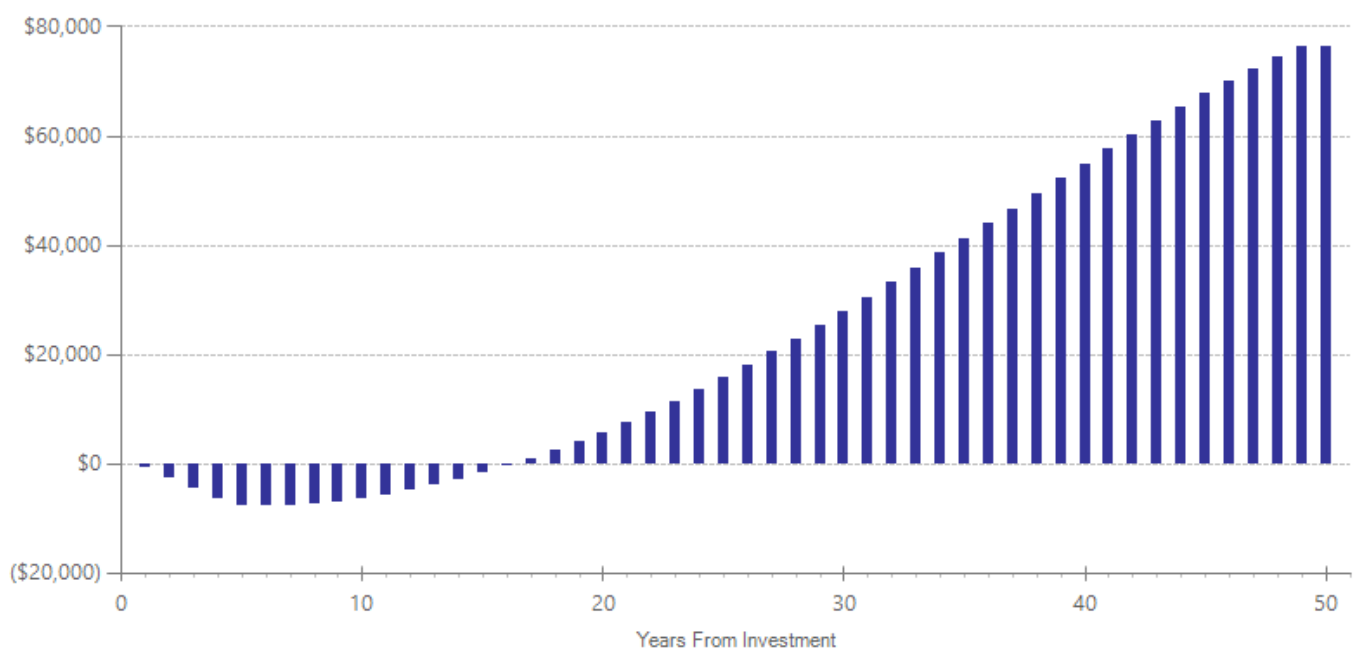
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$297	2009	Present value of net program costs (in 2016 dollars)	($329)
Comparison costs	$0	2009	Cost range (+ or -)	10 %

The per-participant cost of treatment is the weighted average estimate for studies included in the analysis. We calculate the total cost per study using Washington State compensation costs (including benefits) of counselor and staff time as reported by the Office of the Superintendent of Public Instruction. Additional program cost estimates provided by Castleman, B., & Goodman, J. (2015). Intensive college counseling and the enrollment and persistence of low income students. HKS working paper.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant

The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Enroll in 2-year college	2	7520	0.039	0.027	18	0.039	0.027	18	0.039	0.147
Enroll in 4-year college	3	10265	0.123	0.036	18	0.123	0.036	18	0.123	0.001

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Castleman, B., & Goodman, J. (2015). *Intensive college counseling and the enrollment and persistence of low income students.* HKS working paper.

Stephan, J.L., & Rosenbaum, J.E. (2013). Can high schools reduce college enrollment gaps with a new counseling model? *Educational Evaluation and Policy Analysis, 35*(2), 200-219.

Owen, L. (2012). *Narrowing the college opportunity gap: Helping students and families navigate the financial aid process.* Corvallis, OR: Oregon State University.

Belasco, A.S. (2013). Creating college opportunity: School counselors and their influence on postsecondary enrollment. *Research in Higher Education, 54*(7), 781-804.

College advising provided by counselors (for high school students)

Dual enrollment (for high school students)
Higher Education
Benefit-cost estimates updated May 2017. Literature review updated December 2016.

Program Description: Dual enrollment allows high school juniors and seniors to enroll in post-secondary at a community, technical, and (some) four-year colleges. Students participating in dual enrollment simultaneously earn transferrable college credit while still enrolled in high school. Students elect to participate in dual enrollment programs; the tuition costs are generally paid by the school district and the college. Washington State's dual enrollment program is Running Start. In this analysis, dual enrollment differs from college in the high school and early college programs.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$6,175		Benefit to cost ratio	$13.54
Participants	$10,725		Benefits minus costs	$18,922
Others	$3,917		Chance the program will produce	
Indirect	($386)		benefits greater than the costs	86 %
Total benefits	$20,431			
Net program cost	($1,509)			
Benefits minus cost	$18,922			

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   Benefits to:

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$38	$92	$19	$149
Labor market earnings associated with high school graduation	$11,988	$5,444	$5,514	$0	$22,946
Health care associated with educational attainment	($355)	$1,296	($1,418)	$647	$170
Costs of higher education	($908)	($603)	($272)	($300)	($2,082)
Adjustment for deadweight cost of program	$0	$0	$0	($752)	($752)
Totals	$10,725	$6,175	$3,917	($386)	$20,431

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.
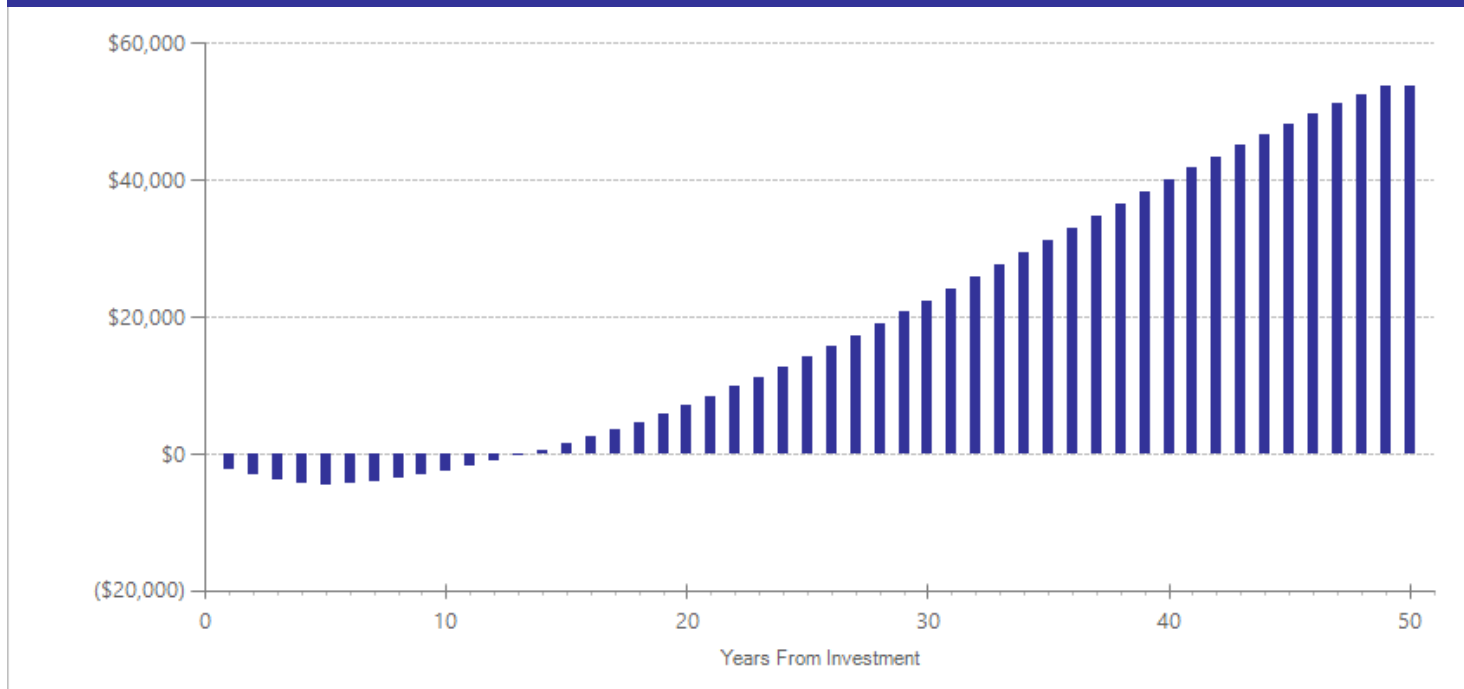
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,493	2015	Present value of net program costs (in 2016 dollars)	($1,509)
Comparison costs	$0	2015	Cost range (+ or -)	10 %

WSIPP estimates the total cost of one year of dual enrollment by taking the difference between WSIPP's per-student estimate of the total expenditures per community and technical college (CTC) student and WSIPP's per-student estimate of the total cost of regular K-12 education. The average Running Start student in Washington enrolls in 11 credits per quarter (Cowan & Goldhaber, 2015). This equates to a 0.73 of a student FTE (based on full-time load of 15 credits). WSIPP's estimates are based on this average credit load.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant

The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
College grade point average^	1	631	0.262	0.040	17	0.262	0.040	17	0.262	0.001
Enroll in 4-year college	4	42045	-0.090	0.192	18	-0.090	0.192	18	-0.090	0.640
Graduate with 2-year degree	1	1700	-0.270	0.035	22	-0.270	0.035	22	-0.270	0.001
Graduate with 4-year degree	3	33462	0.181	0.093	23	0.181	0.093	23	0.181	0.051
High school graduation	6	17094	0.146	0.115	18	0.146	0.115	18	0.146	0.206

^WSIPP's benefit-cost model does not monetize this outcome.

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Cowan, J., & Goldhaber, D. (2015). How much of A ``Running Start'' do dual enrollment programs provide students? *Review of Higher Education, 38*(3), 425-460.

Giani, M., Alexander, C., & Reyes, P. (2014). Exploring variation in the impact of dual-credit coursework on postsecondary outcomes: A quas-experimental analysis of Texas students. *High School Journal, 97*(4), 200-218.

Jorgensen, D.D. (2013). *Concurrent enrollment programs and acquired social capital for students from impoverished backgroundsd: An examination of high school and college outcomes* (PhD dissertation). University of Denver.

Rodriguez, O., Belfield, C., Hughes, K.L., & National Center for Postsecondary Research (Ed). (2012). *Bridging college and careers: Using dual enrollment to enhance careerand technical education pathways.* Ncpr Brief.

Speroni, C. (2011). *High school dual enrollment programs: Are we fast-tracking students too fast?* Ncpr Brief.

Speroni, C., & National Center for Postsecondary Research (Ed). (2011). *Determinants of students' success: The role of Advanced Placement and dual enrollment programs.* an Ncpr Working Paper.

Summer outreach counseling (for high school graduates)
Higher Education
Benefit-cost estimates updated May 2017. Literature review updated December 2016.

Program Description: Throughout the summer, counselors provide support and outreach on financial aid tasks, informational barriers, and social or emotional challenges related to the college transition. Counselors may reach out via email, in-person consultations, phone, text, or instant messages. Summer outreach counseling occurs during the three months between high school graduation and the first year of college.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$4,381	Benefit to cost ratio	$195.39
Participants	$9,941	Benefits minus costs	$18,706
Others	$4,984	Chance the program will produce	
Indirect	($504)	benefits greater than the costs	90 %
Total benefits	$18,802		
Net program cost	($96)		
Benefits minus cost	$18,706		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Labor market earnings associated with higher education	$11,654	$5,292	$5,521	$0	$22,467
Costs of higher education	($1,713)	($912)	($538)	($456)	($3,618)
Adjustment for deadweight cost of program	$0	$0	$0	($48)	($48)
Totals	$9,941	$4,381	$4,984	($504)	$18,802

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

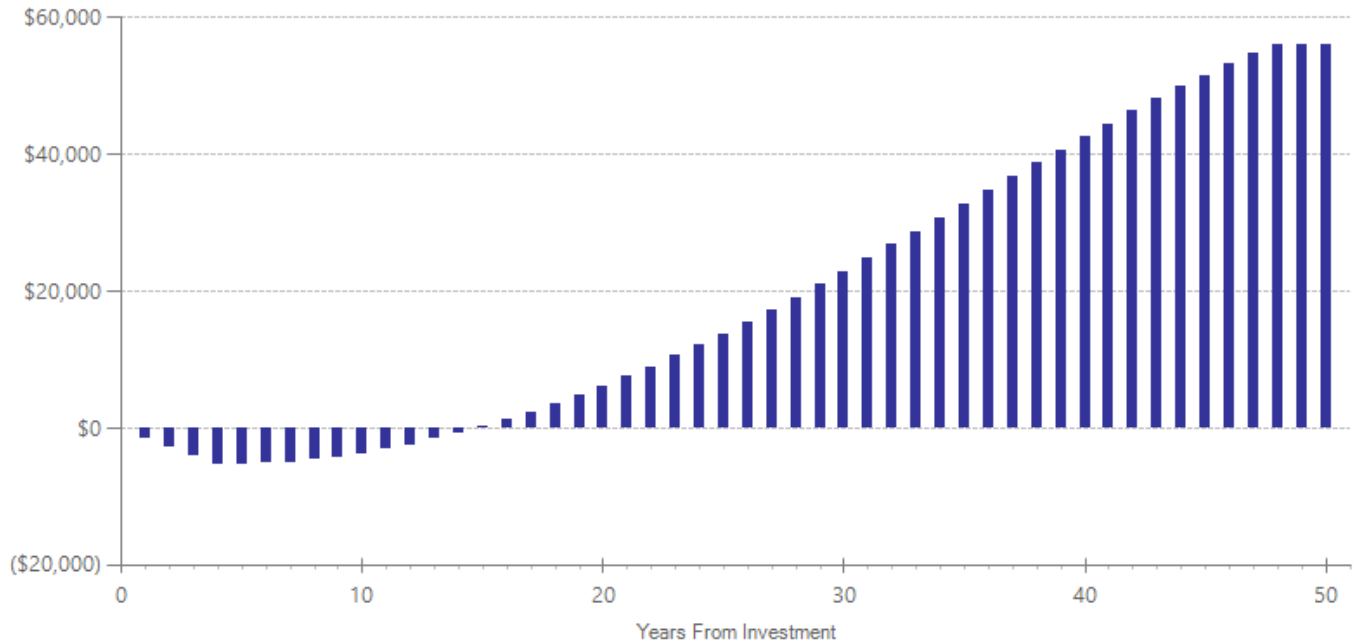## Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$87	2009	Present value of net program costs (in 2016 dollars)	($96)
Comparison costs	$0	2009	Cost range (+ or -)	20 %

Costs come from studies included in meta analyses. We calculate a weighted average of costs across the studies included in the meta-analysis. Costs include counselor time, peer mentor time, and material and postage occurring during the summer months after high school graduation.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant

The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Enroll in 2-year college	2	1015	-0.026	0.072	18	-0.026	0.072	18	-0.026	0.721
Enroll in 4-year college	2	1015	0.118	0.053	18	0.118	0.053	18	0.118	0.025

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Castleman, B.L., & Page, L.C. (2015). Summer nudging: Can personalized text messages and peer mentor outreach increase college going among low-income high school graduates? *Journal of Economic Behavior & Organization, 115*(3), 144-160.

Castleman, B.L., Arnold, K., & Wartman, K.L. (2012). Stemming the tide of summer melt: An experimental study of the effects of post-high school summer intervention on low-income students' college enrollment. *Journal of Research on Educational Effectiveness, 5*(1), 1-17.

Performance-based scholarships (for high school students)
Higher Education
Benefit-cost estimates updated May 2017. Literature review updated December 2016.

Program Description: Performance-based scholarships programs provide students with financial incentives to remain in college, often targeting low-income young adults. Scholarships are provided when students fulfill certain academic benchmarks such as maintaining a 2.0 GPA or enrolling in college. There are no initial academic requirements for the receipt of performance-based aid. Students usually receive their aid in monthly or quarterly installments.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$1,928	Benefit to cost ratio	$5.61
Participants	$4,994	Benefits minus costs	$6,950
Others	$2,597	Chance the program will produce	
Indirect	($1,063)	benefits greater than the costs	74 %
Total benefits	$8,457		
Net program cost	($1,507)		
Benefits minus cost	$6,950		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Labor market earnings associated with higher education	$5,614	$2,550	$2,760	$0	$10,924
Costs of higher education	($620)	($622)	($163)	($311)	($1,715)
Adjustment for deadweight cost of program	$0	$0	$0	($752)	($752)
Totals	$4,994	$1,928	$2,597	($1,063)	$8,457

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.
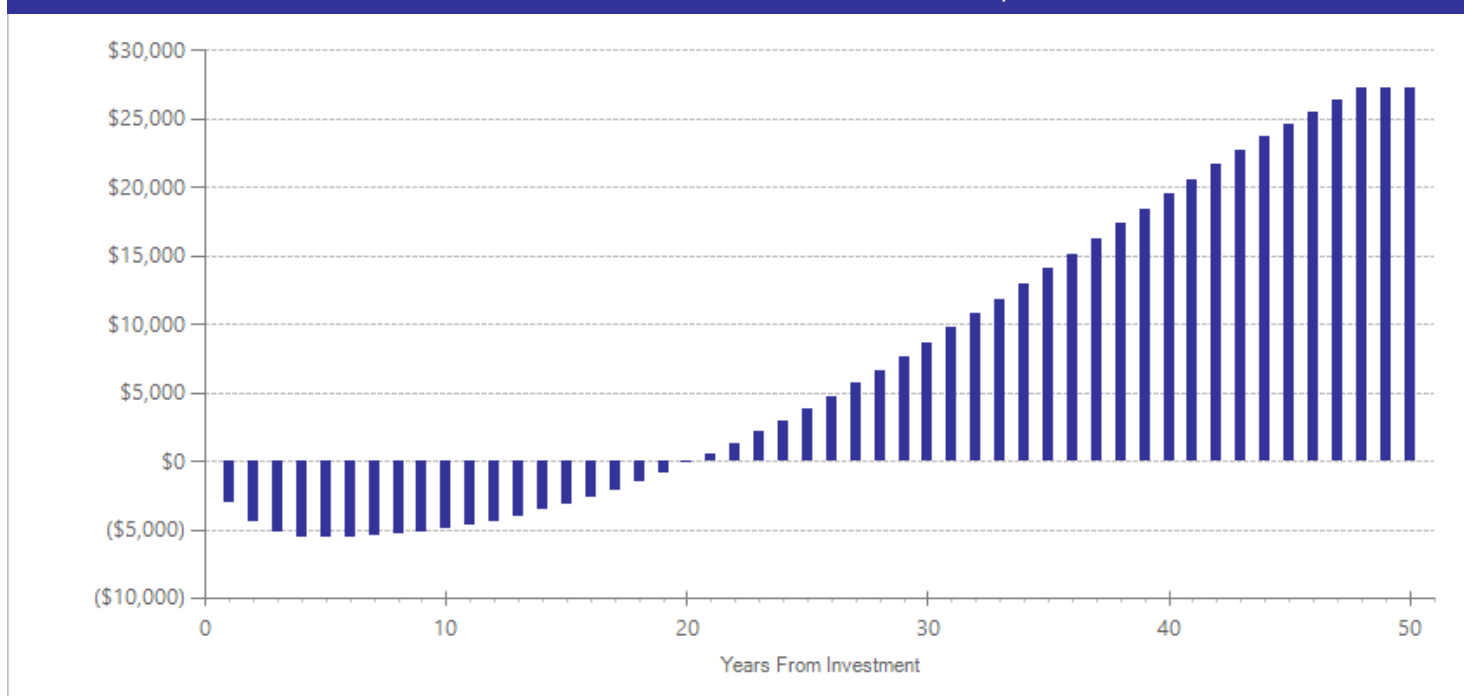
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$1,275	2014	Present value of net program costs (in 2016 dollars)	($1,507)
Comparison costs	$0	2014	Cost range (+ or -)	20 %

Cost come from Mayer et al. (2015). Costs include scholarship payments, administrative costs of providing scholarships, and student support services. Evaluation and start-up costs are excluded. Performance-based scholarships are in addition to standard programming received by the comparison group. PBS program duration varied, but on average, the program lasted a little over 1 year.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant

The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Enroll in 2-year college	1	1361	0.115	0.039	18	0.115	0.039	18	0.115	0.003
Enroll in 4-year college	1	1361	0.000	0.039	18	0.000	0.039	18	0.000	1.000

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

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WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Mayer, A.K., Patel, R., Rudd, T., & Ratledge, A. (2015). *Designing scholarships to improve college success: Final report on the Performance-Based Scholarship Demonstration.* New York, NY: Manpower Demonstration Research Corporation.

Text message reminders (for high school graduates)
Higher Education
Benefit-cost estimates updated May 2017. Literature review updated December 2016.

Program Description: Text message reminders (for high school graduates) were targeted at college-intending high school graduates the summer after high school graduation. Students receive automated text message reminders on financial aid and college enrollment tasks, as well as prompts to reach out for help from designated organization if needed. Text messages were sent over 6 weeks during the summer months after high school graduation.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$49	Benefit to cost ratio	$135.71
Participants	$641	Benefits minus costs	$971
Others	$391	Chance the program will produce	
Indirect	($102)	benefits greater than the costs	53 %
Total benefits	$978		
Net program cost	($7)		
Benefits minus cost	$971		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]   Benefits to:

	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Labor market earnings associated with higher education	$536	$243	$330	$0	$1,110
Costs of higher education	$105	($195)	$61	($99)	($128)
Adjustment for deadweight cost of program	$0	$0	$0	($4)	($4)
Totals	$641	$49	$391	($102)	$978

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.
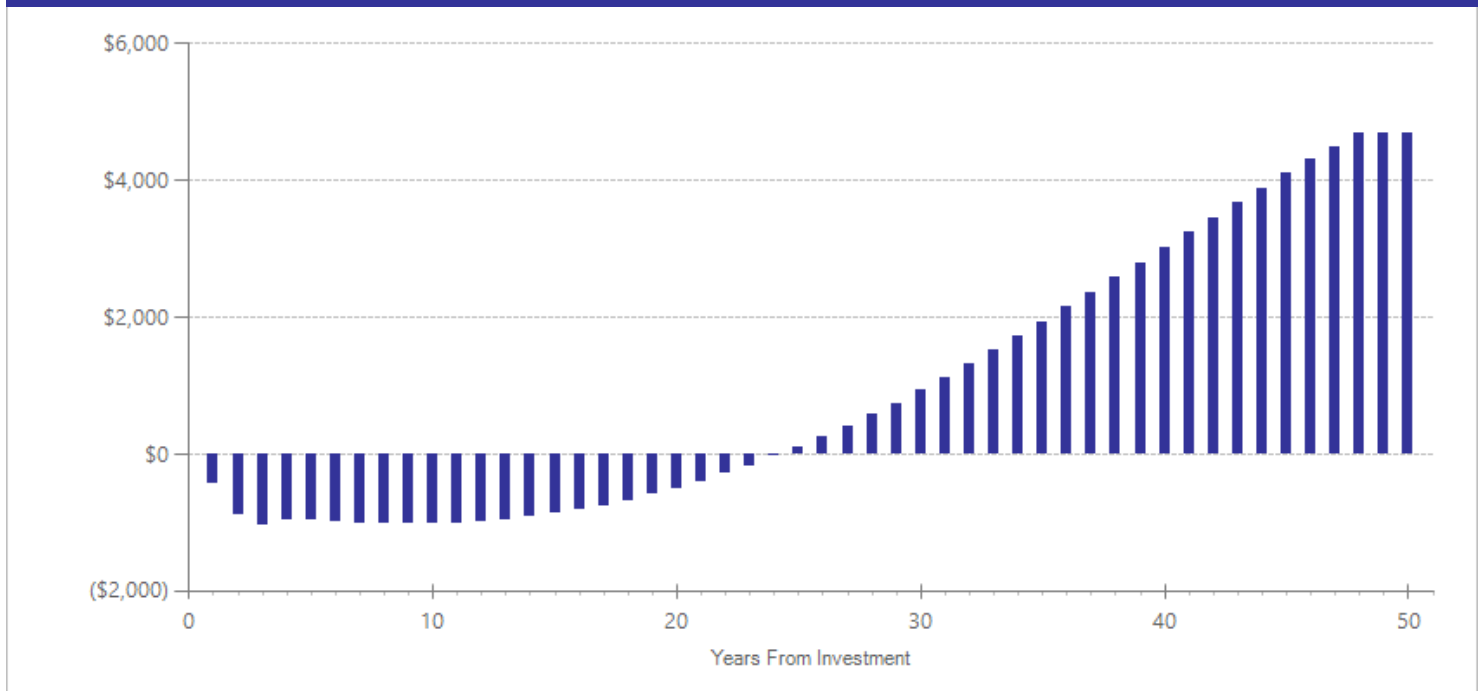
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$7	2013	Present value of net program costs (in 2016 dollars)	($7)
Comparison costs	$0	2013	Cost range (+ or -)	10 %

Costs include the cost of text message delivery and the staff costs for the counselor hired to respond to text messages. Source: Castleman, B.L., & Page, L.C. (2015). Summer nudging: Can personalized text messages and peer mentor outreach increase college going among low-income high school graduates? Journal of Economic Behavior & Organization, 115(3), 144-160.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant

The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Enroll in 2-year college	1	2524	0.107	0.041	18	0.107	0.041	18	0.107	0.010
Enroll in 4-year college	1	2524	-0.046	0.035	18	-0.046	0.035	18	-0.046	0.186

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Castleman, B.L., & Page, L.C. (2015). Summer nudging: Can personalized text messages and peer mentor outreach increase college going among low-income high school graduates? *Journal of Economic Behavior & Organization, 115*(3), 144-160.

College advising provided by peer mentors (for high school students)
Higher Education
Benefit-cost estimates updated May 2017. Literature review updated December 2016.

Program Description: Students in the 11th and 12th grade receive postsecondary education planning support from peer mentors. The peer mentors in the evaluations included in this meta-analysis are undergraduate or graduate students. The peer mentor assists the student with the college application process and gives advice and encouragement on the student's plans to go attend college. The student meets with their peer mentor in person at the high school, but interactions also take place via text message, email, or over the phone. The length and frequency of interaction with a peer mentor ranges from meeting during the month when students are applying to college (three hours per week for one month) to one hour per month for the entire school year.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	($348)	Benefit to cost ratio	$2.06
Participants	$1,350	Benefits minus costs	$833
Others	$1,628	Chance the program will produce	
Indirect	($1,012)	benefits greater than the costs	50 %
Total benefits	$1,617		
Net program cost	($784)		
Benefits minus cost	$833		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	($25)	($61)	($12)	($99)
Labor market earnings associated with high school graduation	($7,934)	($3,603)	($3,634)	$0	($15,171)
Health care associated with educational attainment	$236	($861)	$942	($432)	($115)
Labor market earnings associated with higher education	$9,895	$4,493	$4,657	$0	$19,045
Costs of higher education	($846)	($353)	($276)	($175)	($1,650)
Adjustment for deadweight cost of program	$0	$0	$0	($393)	($393)
Totals	$1,350	($348)	$1,628	($1,012)	$1,617

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.
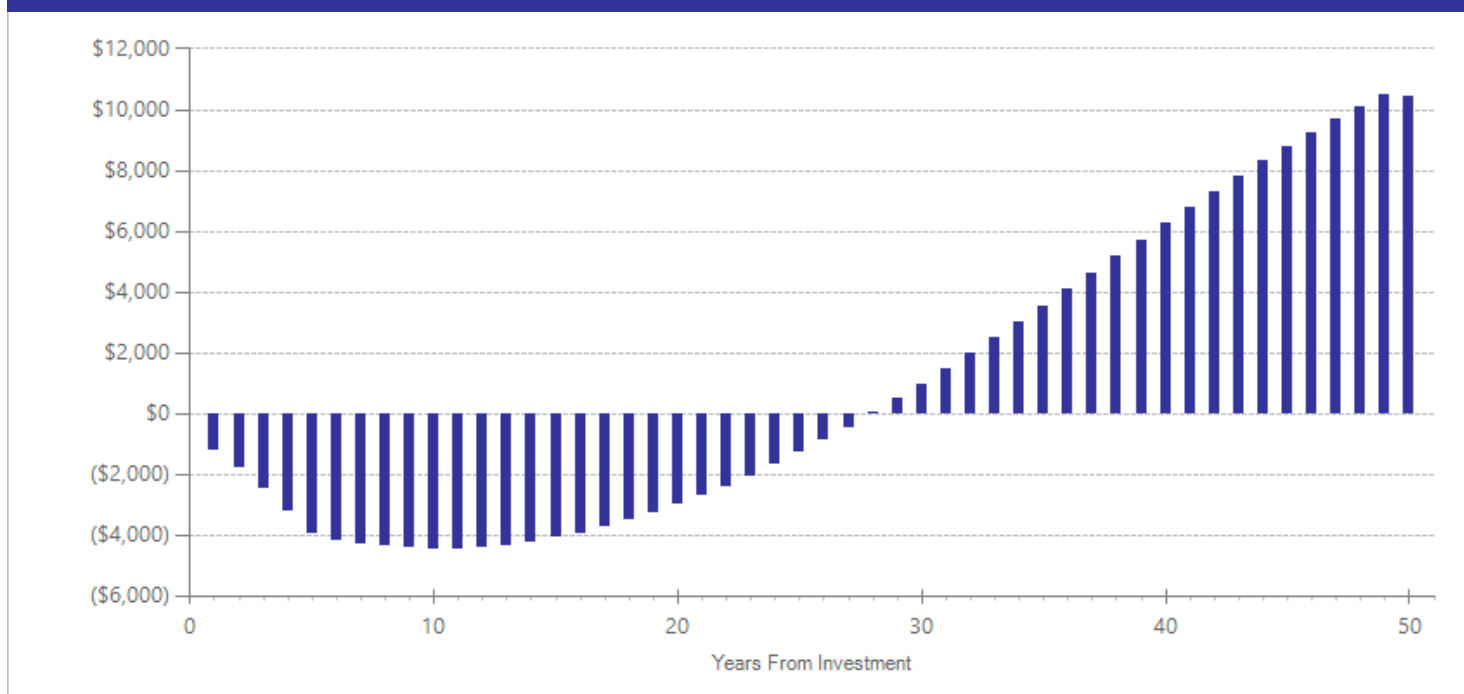
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$708	2009	Present value of net program costs (in 2016 dollars)	($784)
Comparison costs	$0	2009	Cost range (+ or -)	10 %

The per-participant cost of treatment is the weighted average estimate for studies included in the analysis. We calculate the total cost per study using peer mentoring time (estimated using the federal minimum wage) and stipends from Bos, J.M., Berman, J., Kane, T.J., & Tseng, F.M. (2012). The impacts of SOURCE: A program to support college enrollment through near-peer, low-cost student advising. Working paper.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant

The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
College grade point average^	1	1038	-0.022	0.041	18	-0.022	0.041	18	-0.022	0.593
Enroll in 2-year college	2	1552	-0.031	0.044	18	-0.031	0.044	18	-0.031	0.474
Enroll in 4-year college	2	1552	0.105	0.043	18	0.105	0.043	18	0.105	0.015
High school graduation	1	1038	-0.088	0.054	18	-0.088	0.054	18	-0.088	0.106

^WSIPP's benefit-cost model does not monetize this outcome.

College advising provided by peer mentors (for high school students)

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Bos, J.M., Berman, J., Kane, T.J., & Tseng, F.M. (2012). *The impacts of SOURCE: A program to support college enrollment through near-peer, low-cost student advising.* Working paper.

Carrell, S.E., & Sacerdote, B. (2012). *Late interventions matter too: The case of college coaching New Hampshire.* Cambridge, MA: National Bureau of Economic Research.

Opening Doors advising in community college
Higher Education
Benefit-cost estimates updated May 2017. Literature review updated December 2016.

Program Description: This meta-analysis includes one large multi-site evaluation of an advising component of the Opening Doors program from MDRC. Opening Doors MDRC works with community colleges to implement one or more of the following strategies: new types of financial aid, enhanced student services, and curricular and instructional innovations. In the evaluation included in this meta-analysis, freshmen at the community college receive enhanced counseling and advising. The counselors work with far fewer students than a traditional college setting, allowing for more intensive, comprehensive, and personalized sessions. Students typically meet with a counselor at least twice per semester for two semesters. Students discuss their academic progress and any other obstacles affecting their schooling. The students targeted for the intervention are all low income (with a family income below 250% of the federal poverty level).

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$303	Benefit to cost ratio	($1.70)
Participants	($606)	Benefits minus costs	($2,188)
Others	($973)	Chance the program will produce	
Indirect	($101)	benefits greater than the costs	22 %
Total benefits	($1,377)		
Net program cost	($811)		
Benefits minus cost	($2,188)		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2016). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Labor market earnings associated with higher education	($682)	($310)	($968)	$0	($1,960)
Costs of higher education	$76	$612	($4)	$308	$992
Adjustment for deadweight cost of program	$0	$0	$0	($408)	($408)
Totals	($606)	$303	($973)	($101)	($1,377)

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.
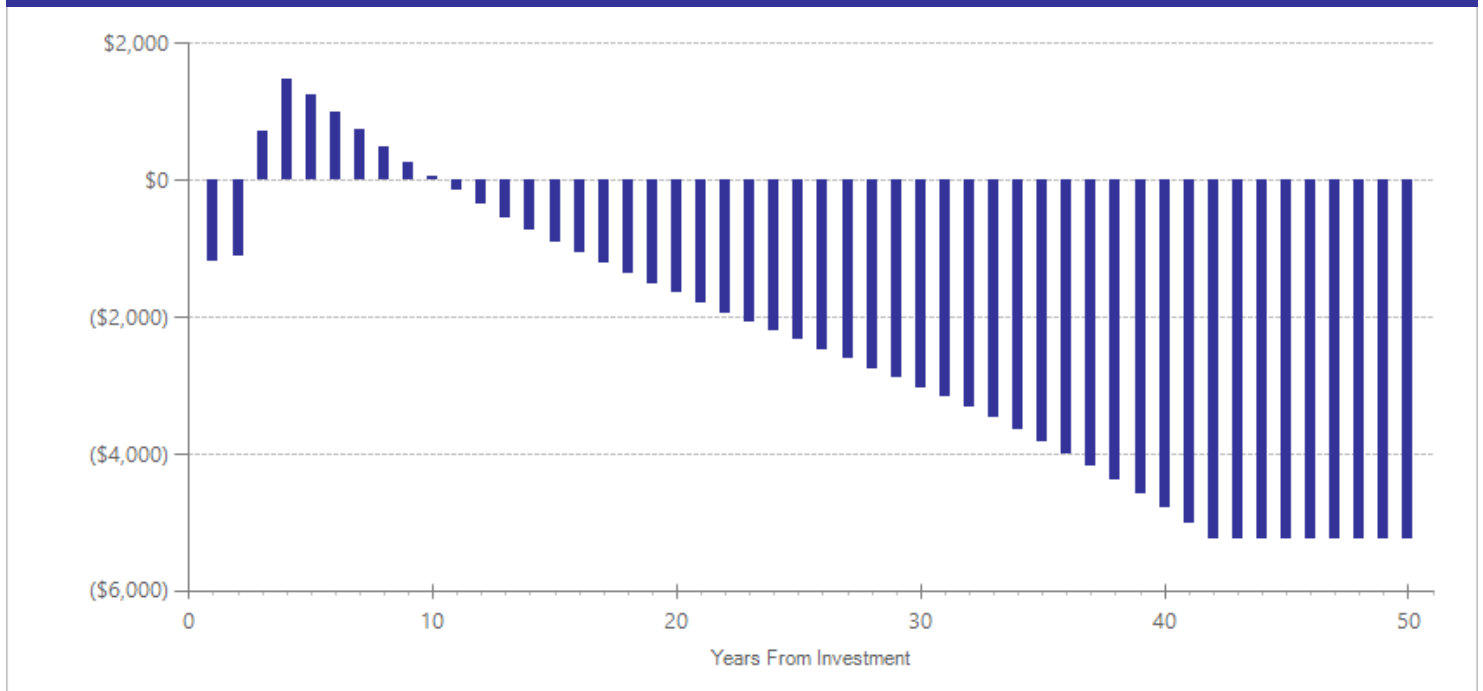
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$733	2009	Present value of net program costs (in 2016 dollars)	($811)
Comparison costs	$0	2009	Cost range (+ or -)	10 %

Total costs include counselor and staff time using average Washington State compensation costs (including benefits) (as reported by the Office of Financial Management). The cost estimate includes a $300 annual stipend as reported by Scrivener, S., & Weiss, M.J. (2009). More guidance, better results? Three-year effects of an enhanced student services program at two community colleges. New York, NY: Manpower Demonstration Research Corporation.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant

The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Transfer from 2- to 4-year college	1	1073	-0.014	0.053	27	-0.014	0.053	27	-0.014	0.799
Graduate with 2-year degree	1	1073	-0.102	0.053	27	-0.102	0.053	27	-0.102	0.055
Persistence into 2nd year^	1	1073	0.098	0.049	25	0.098	0.049	25	0.098	0.044
Persistence into 3rd year^	1	1073	0.079	0.051	26	0.079	0.051	26	0.079	0.123

^WSIPP's benefit-cost model does not monetize this outcome.

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An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Scrivener, S., & Weiss, M.J. (2009). *More guidance, better results? Three-year effects of an enhanced student services program at two community colleges.* New York, NY: Manpower Demonstration Research Corporation

Early commitment programs (for middle and high school students)
Higher Education
Literature review updated December 2016.

Program Description: Early commitment programs offer assured college financial assistance early in students' academic careers, conditional on meeting certain program requirements. We focus on programs where students were assured assistance by the tenth grade, and the program requirements were low enough that students would be reasonably certain that they would be able to receive aid. We distinguish these programs from merit programs by excluding programs with a test score requirement and/or a minimum GPA requirement of 3.0 or higher. The programs included in the meta-analysis cover up to 100% of college tuition and fees at eligible colleges and universities for four years, conditional on meeting initial scholarship requirements and continued satisfactory academic performance in college. One program included in the meta-analysis also provided academic (tutoring/counseling) and college application support in high school.

Meta-Analysis of Program Effects										
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Enroll in 2-year college	2	12841	0.025	0.020	18	0.025	0.020	18	0.025	0.208
Enroll in 4-year college	3	16386	0.200	0.107	18	0.200	0.107	18	0.200	0.062
Graduate with 2-year degree	1	855	0.056	0.130	22	0.056	0.130	22	0.056	0.669
Graduate with 4-year degree	2	2764	0.149	0.126	23	0.149	0.126	23	0.149	0.236
Persistence into 4th year	1	855	-0.114	0.056	22	-0.114	0.056	22	-0.114	0.043

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Citations Used in the Meta-Analysis

Bartik, T.J., Hershbein, B., & Lachowska, M. (2015). *The effects of the Kalamazoo Promise Scholarship on college enrollment, persistence, and completion.* Upjohn Institute Working Paper 15-229. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research

Bozick, R., Gonzalez, G., & Engberg, J. (2015). Using a merit-based scholarship program to increase rates of college enrollment in an urban school district: The case of the Pittsburgh Promise. *Journal of Student Financial Aid, 45*(2), 2-24.

St. John, E.P., Gross, J.P.K., Musoba, G.D., & Chung, A.S. (2005). *A step toward college success: Assessing attainment among Indiana's Twenty-First Century Scholars.* Indianapolis, IN: Lumina Foundation for Education.

Toutkoushian, R.K., Hossler, D., Desjardins, S.L., McCall, B.P., & Canche, M.G. (2015). The effect of participating in Indiana's Twenty-First Century Scholars program on college enrollments. *Review of Higher Education, 39*(1), 59-95.

Performance-based scholarships (for college students)
Higher Education
Literature review updated December 2016.

Program Description: Performance-based scholarships programs provide students with financial incentives to remain in college, often targeting low-income young adults. Scholarships are provided when students fulfill certain academic benchmarks such as maintaining a 2.0 GPA or enrolling in college. There are no initial academic requirements for the receipt of performance-based aid. Students usually receive their aid in monthly or quarterly installments over one or more terms.

Meta-Analysis of Program Effects									
Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
College grade point average	1	366	0.148	0.483	26	0.148	0.483	26	0.148	0.759
Graduate with any degree	4	2572	0.073	0.043	28	0.073	0.043	28	0.073	0.092
Obesity	1	371	0.008	0.092	26	0.008	0.092	26	0.008	0.933
Persistence into 2nd year	4	2572	0.037	0.040	26	0.037	0.040	26	0.037	0.351
Persistence into 3rd year	4	2572	0.042	0.051	27	0.042	0.051	27	0.042	0.407
Persistence into 4th year	2	1287	0.030	0.051	27	0.030	0.051	27	0.030	0.562
Persistence into 5th year	1	751	0.136	0.065	32	0.136	0.065	32	0.136	0.035
Remedial credits earned	1	505	0.177	0.481	26	0.177	0.481	26	0.177	0.713
Regular smoking	1	388	0.024	0.123	26	0.024	0.123	26	0.024	0.844

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

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Citations Used in the Meta-Analysis

Mayer, A.K., Patel, R., Rudd, T., & Ratledge, A. (2015). *Designing scholarships to improve college success: Final report on the Performance-Based Scholarship Demonstration.* New York, NY: Manpower Demonstration Research Corporation.

Richburg-Hayes, L., Brock, T., LeBlanc, A., Paxson, C., Rouse, C.E., & Barrow, L. (2009). *Rewarding persistence: Effects of a performance-based scholarship program for low-income parents.* New York, NY: Manpower Demonstration Research Corporation.

Summer bridge (for high school graduates)
Higher Education
Literature review updated December 2016.

Program Description: Summer bridge programs enroll first-year college students during the summer before the students' first semester of college. Students usually take academic remedial courses and participate in academic and college skills workshops to assist with the college transition. These programs often target low-income, minority, and/or low-performing students.

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Enroll in any college	1	793	-0.015	0.084	18	-0.015	0.084	18	-0.015	0.861
Graduate with any degree	1	413	0.245	0.063	22	0.245	0.063	22	0.245	0.001
Remedial credits earned	1	793	-0.112	0.056	20	-0.112	0.056	20	-0.112	0.046

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WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Barnett, E.A., Bork, R.H., Mayer, A.K., Pretlow, J., Wathington, H.D., & Weiss, M.J. (2012). *Bridging the gap: An impact study of eight developmental summer bridge programs in Texas.* New York, NY: National Center for Postsecondary Research, Teachers College, Columbia University.

Douglas, D., & Attewell, P. (2014). The bridge and the troll underneath: Summer bridge programs and degree completion. *American Journal of Education, 121*(1), 87-109.

Text message reminders (for college students)
Higher Education
Literature review updated December 2016.

Program Description: Text message reminders provide college students with a range of information about available student services and financial aid. In the studies included in this meta-analysis, college students were encouraged to re-file for financial aid or were advised of available tutoring and advising resources available on campus. Students were sent 12 to 40 text messages during the first year of college.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
College grade point average	1	407	0.029	0.095	19	0.029	0.095	19	0.029	0.761
Persistence into 2nd year	2	413	0.070	0.250	20	0.070	0.250	20	0.070	0.780

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

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WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Castleman, B.L., & Meyer, K. (2016). *Can text message nudges improve academic outcomes in college? Evidence from a West Virginia initiative*. Charlottesville, VA: EdPolicyWorks.

Castleman, B.L., & Page, L.C. (2016). Freshman year financial aid nudges: An experiment to increase FAFSA renewal and college persistence. *Journal of Human Resources, 51*(2), 389-415.

Merit aid (for high school students)
Higher Education
Literature review updated December 2016.

Program Description: Undergraduate students receive merit aid based on prior academic achievement, such as SAT/ACT scores or high school GPA. Students may be able to renew their merit aid awards each year if they continue to reach certain academic benchmarks. Merit aid rewards students for past achievements, and encourages them to continue meeting high academic standards. Studies included in merit aid (for high school students) examine effects of aid prior to enrolling in college.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Enroll in 2-year college	6	38574	-0.034	0.054	19	-0.034	0.054	19	-0.034	0.529
Enroll in 4-year college	9	52978	0.093	0.029	19	0.093	0.029	19	0.093	0.001
Graduate with 2-year degree	4	400331	-0.006	0.002	27	-0.006	0.002	27	-0.006	0.008
Graduate with 4-year degree	5	400499	-0.001	0.021	27	-0.001	0.021	27	-0.001	0.955
Persistence into 2nd year	3	6261	0.019	0.032	19	0.019	0.032	19	0.019	0.560
Persistence into 3rd year	1	524	0.195	0.077	20	0.195	0.077	20	0.195	0.011
Persistence into 4th year	2	21145	0.061	0.138	21	0.061	0.138	21	0.061	0.657

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

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Merit aid (for college students)
Higher Education
Literature review updated December 2016.

Program Description: Undergraduate students receive merit aid based on prior academic achievement, such as SAT/ACT scores or high school grade point average. Students may be able to renew their merit aid awards each year if they continue to reach certain academic benchmarks. Merit aid rewards students for past achievements, and encourages them to continue meeting high academic standards. Merit aid (for college students) focuses on the effects of merit aid for those already enrolled in college. In this meta-analysis, effects on 2-year graduation and transfer from 2-year to 4-year college were based on a single study focusing on 2-year institutions.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
College grade point average	5	21120	0.029	0.014	23	0.029	0.014	23	0.029	0.040
Earnings[*]	3	12122	0.040	0.021	27	0.040	0.021	27	0.040	0.056
Employment	3	12122	-0.007	0.018	27	-0.007	0.018	27	-0.007	0.711
Transfer from 2- to 4-year college	1	11898	0.042	0.273	24	0.042	0.273	24	0.042	0.878
Graduate with 2-year degree	1	9518	0.077	0.280	22	0.077	0.280	22	0.077	0.783
Graduate with 4-year degree	4	14059	0.149	0.057	24	0.149	0.057	24	0.149	0.009

[*]The effect size for this outcome indicates percentage change, not a standardized mean difference effect size.

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

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Washington State Institute for Public Policy

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